

APPLIED MATHEMATICS SEMINAR
Department of Mathematics
University of West Georgia
11:00 AM, WEDNESDAY, SEPTEMBER 26, 2007, BOYD 330

Speaker: Dr. Nguyen Van Minh, UWG

**Title: Asymptotic Behavior of Solutions of a Differential Equation arising
from Biology: The invariant manifold approach**

Abstract

In this talk I will first recall a classical method of studying the asymptotic behavior of solutions around the steady states via invariant manifolds in their neighborhoods. This part will be briefly presented without any proofs. The results range from Hartman-Grobman Theorem to basic bifurcation as parameters change across critical values.

As an application I will take a differential equation as a mathematical model of skeletal muscle contraction in a current project with J. Hasbun (Phys. Dept) and H. Zot (Bio. Dept). The model involves a D.E. in \mathbb{R}^3 that generates a dynamical system leaving the pyramid with vertexes $(0, 0, 0)$, $(1, 0, 0)$, $(0, 1, 0)$, $(0, 0, 1)$ invariant. The behavior of the system inside this pyramid is of our interest.

We will focus on how the system reacts to the changes of parameters and on how to explain the reaction.

All are welcome.